



Ministère
des Corporations Canada

Consumer and
Corporate Affairs Canada (21) (A1)

2,036,560

Bureau des brevets

Patent Office

(22;

1991/02/18

Ottawa, Canada
K1A 0G9

(43)

1992/08/08

(52)

379-6

(51) INTL.CL. ⁵ H04M-11/00

(19) (CA) **APPLICATION FOR CANADIAN PATENT** (12)

(54) **Sealed Portable Alarm with Internal Cellular Telephone**

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(30) (US) 652,005 1991/0/07

(57) **10 Claims**

Notice: The specification contained herein as filed

Canada

100-100-100-100

SEALED PORTABLE ALARM WITH INTERNAL CELLULAR TELEPHONE

Abstract of the Disclosure

A portable, stand-alone alarm system which comprises a sealed housing having a first sealed compartment in which is located a control alarm circuit and associated components of the control circuit. A second compartment is provided in which is located a transceiver system provided with a telephone handset. The second compartment has a door for access thereto and provided with a lock actuatable by an authorized person only. A cellular telephone system is provided in the second compartment and has a transmitter circuit, a dialer circuit, and a receiver circuit. A digital key pad is secured to an exterior wall of the sealed housing for programming the control circuit and for authorization of the system by a designated user. Temperature and intrusion sensing devices are provided and communicate alarm signals to the control circuit so as to generate a local and/or a remote alarm signal condition. The system can be used in areas where there is no electrical power or any telephone lines and because of its portability, can be located anywhere in a room or a plurality of systems can be located throughout a large area to be protected.

BACKGROUND OF INVENTION

Field of the Invention

The present invention relates to a portable, stand-alone alarm system which is contained within a sealed housing and provided with a key pad for use of the alarm by a designated user only and permitting the user to instruct the control circuit provided within the sealed housing. The alarm system also incorporates a cellular telephone to transmit coded signals to a central control station thus permitting the alarm system to be used in areas where there is no telephone line. The portable alarm system of the present invention can therefore be utilized as a monitoring device and an intrusion alarm.

Description of Prior Art

In my U.S. Patent No. 4,943,799, I describe a portable alarm system having a sealed enclosure wherein a lessor is the only person having access to the circuitry provided within the sealed alarm housing. This type of system has been found quite adequate for providing a portable intrusion alarm system which can be leased and controlled by the lessee. However, it is essential with such alarm that there be provided a telephone and telephone jacks in order to communicate with the lessor central station. There is a need to provide a portable alarm which can operate without the use of a local telephone line. There is also the need to provide an alarm system which can report various type information to a central location including intrusion alarm signals as well as signals representative of temperature being monitored in the environment of the alarm housing. There

is also a need to provide a portable alarm system permitting authorized user access to a handset secured within a locked compartment of the housing so that the user can utilize a cellular telephone handset to communicate.

SUMMARY OF INVENTION

It is therefore a feature of the present invention to provide a portable, stand-alone alarm system which incorporates a cellular telephone system housed within a sealed housing and wherein access to the handset of the telephone system is accessible to a designated user only.

Another feature of the present invention is to provide a portable, stand-alone alarm system which consists of three independent compartments which are accessible to authorized users only, one of the compartments housing an alarm control circuit and components, the other housing a cellular telephone system, and a third housing a power supply.

Another feature of the present invention is to provide a portable, stand-alone alarm system which is provided with sealed compartments and capable of monitoring ambient temperature conditions and transmitting signals representative of same to a central station or generating local and remote alarms when predetermined temperature values are exceeded.

According to the above features, from a broad aspect, the present invention provides a portable, stand-alone alarm system which comprises a sealed housing having a first sealed compartment in which is located a control alarm circuit and associated components of the

control circuit. A second compartment is provided in which is located a transceiver system provided with a telephone handset. The second compartment has a door for access thereto. The door has a lock actuable by an authorized person only. A cellular telephone system is provided in the second compartment. The telephone system has a transmitter circuit, a dialer circuit, and a receiver circuit. A telephone handset is provided in the second housing. An antenna is secured to the sealed housing. A digital key pad is also secured to an exterior wall of the sealed housing and has a plurality of switching means to program the control alarm circuit. A status annunciator circuit and visual display means provides visual signals to a user person exteriorly of the housing. One or more wireless remote detectors are associated with the housing and have a local transmitter for transmitting alarm signals to an alarm receiver in the sealed housing and connected to the control circuit. The alarm receiver has two or more channels corresponding to zones of protection associated with the alarm system. A first of the channels has a delay circuit connected thereto through the control circuit. The control circuit switches to an alarm state after a predetermined time delay from reception of an alarm signal on the first channel. The control circuit switches immediately to an alarm state after reception of alarm signals on a second or further ones of the receiver channels. The alarm state provides actuating signals to a siren to provide a local alarm and further enables the dialer circuit to communicate with a remote control receiver to provide a remote alarm.

BRIEF DESCRIPTION OF DRAWINGS

A preferred embodiment of the present invention will now be described with reference to the accompanying drawings in which:

FIGURE 1 is a front perspective view of the portable alarm of the present invention;

FIGURE 2 is a rear perspective view of the portable alarm; and

FIGURE 3 is a simplified circuit diagram of the portable alarm system.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to the drawings, and more particularly to Figures 1 and 2, there is shown generally at 10, the portable, stand-alone alarm system of the present invention. As herein shown, the system is provided as a compact portable sealed housing having a first compartment 01 in which is housed an electronic alarm control circuit 40 (see Figure 3) and to which is connected various electronic components, as will be described later in detail with reference to Figure 3. A second locked housing 03 is provided in which is housed a cellular telephone system as will be more specifically defined with reference to Figure 3. A third sealed housing 02 is also provided and has a removable panel for access to the interior thereof. This third compartment houses a transformer 43 and a rechargeable battery 42 (see Figure 3) and is connected to the alarm control circuit 40. A handle 15 is conveniently located on the housing for transportation purposes.

A digital key pad 11 is secured to the front wall 10' of the housing compartment 01 and has a plurality of push button switches 12 to permit a person who is the proprietor of the alarm to program the control circuit 40 to accept an authorized user code which is stored in the memory of the control circuit 40. Both side walls of the housing, namely side walls 06 and 07, have perforated areas adjacent which are secured sirens 17 and 17'. A low temperature detector 20 and a heat detector 21 are also mounted in the side wall 06. One of these detectors or both can be secured to a transducer circuit 20' which can be switched into the circuit as an option to provide temperature monitoring signals to the control circuit 40 which could be stored in a temperature data storage circuit 60 for periodic transmission through the cellular telephone transceiver 46. An A.C. connecting plug 24 and a D.C. connecting plug 22 and a pair of telephone jacks 18 and 19 are further secured to the side wall 06.

In the compartment 03, there is provided a cellular telephone 47 and a transceiver circuit 46 for receiving and transmitting telephone signals. The telephone jack 18 also connects to a dialer circuit 66 provided in compartment 01 and also interconnects with the cellular telephone connection panel 45. The telephone system will automatically dial an alarm code to a designated remote control office to identify the code with the specific portable housing and the authorized user whereby to identify the location of the alarm. The other telephone jack 19 is provided to connect to a standard telephone as usually connected to a wall jack.

The antenna 16 is mounted on the top wall 04 of the compartment 03 and connects to the transceiver 46 as shown in Figure 3.

As shown in Figure 2, the compartment 03 has a back door 30 which is provided with a key lock 31 to provide access to a designated user person only so as to provide access to the handset 47 which is positioned inside the lock compartment 03. Although not shown, it is within the ambit of the present invention to provide a protection circuit whereby the key lock 31 can only be operated after a specific code has been punched in the key pad.

Secured inside the housing 02 is a transformer 43 to supply the necessary low voltage to the various component parts of the alarm control circuit 40. The transformer is connected to an electrical socket 24 in the side wall 06 of the housing. A power cord 36 is provided with opposed electrical end plugs 35 and 37. Another electrical socket 22 is also provided for extra D.C. supply. A 12-volt D.C. rechargeable battery 42 is mounted inside the seal housing 02 and acts as an auxiliary supply in the event of a power failure. An actuator/detector power switching circuit 65 detects the local power supply failure and switches the system to the D.C. rechargeable battery 42.

The receiver circuit 44 is a multi-channel receiver and is also provided in the housing 01 and interconnects with the control circuit 40. Each channel of the receiver is connected to the control circuit 40. To these channels can be programmed a motion detector operating at a frequency which is the same frequency as

the receiver channel. Accordingly, a plurality of motion detectors can be provided. These motion detectors are infrared wireless detectors having built-in transmitters tuned to a respective channel of the receiver. Accordingly, up to four detectors can be provided. It is also pointed out that a first one of these channels is connected to a delay circuit associated with the control circuit so that the control circuit will only switch to an alarm state to generate an alarm code on the cellular telephone line after a predetermined time delay. Therefore, the detector associated with this channel is positioned in an area where the authorized user can enter to punch in a code on the key pad to deprogram the alarm within the set time delay period. The other channels have no delay circuit associated therewith and generate alarms as soon as they receive an alarm signal from their associated detectors.

The heat detector 21 as hereinshown is provided to sense a local fire condition. This detector 21 is connected to the control circuit 40 which switches to an alarm state when it receives an alarm signal from the detector and sends a fire identification signal through the cellular telephone system. The detector 18 as hereinshown is a low temperature detector and senses a predetermined low temperature value. As previously described, a transducer circuit 20' may be associated with one of these detectors to monitor a broad range of temperature variations and provide signals to a remote station or to a facsimile machine (not shown) identified by the dialer circuit 66 and operable at a remote location. Another feature of the present invention is

that by the use of a cellular telephone, it is also possible to interface the system with a computer system through a modem and to provide alarm conditions or temperature monitoring signals, as above described.

The digital key pad 11 is also provided with an annunciator LED display 14 to indicate various functions such as an indication that the power is on, an indication of open zones, the condition of an internal circuit, a local problem, the condition of the alarm memory circuit, etc. The fuses 41 are provided inside the housing and protect the internal circuits against high voltage surges.

It is within the ambit of the present invention to cover any obvious modifications of the preferred embodiment described herein, provided such modifications fall within the scope of the appended claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A portable, stand-alone alarm system comprising a sealed housing having a first sealed compartment in which is located a control alarm circuit and associated components of said control circuit, a second compartment in which is located a transceiver system provided with a telephone handset, said second compartment having a door for access thereto, said door having a lock actuatable by an authorized person only, a cellular telephone system in said second compartment; said telephone system having a transmitter circuit, a dialer circuit, and a receiver circuit; a telephone handset in said second housing, an antenna secured to said sealed housing, a digital key pad secured to an exterior wall of said sealed housing and having a plurality of switching means to program said control alarm circuit, a status annunciator circuit and visual display means to provide visual signal to a user person exteriorly of said housing, one or more wireless remote detectors associated with said housing and having a local transmitter for transmitting alarm signals to an alarm receiver in said sealed housing and connected to said control circuit, said alarm receiver having two or more channels corresponding to zones of protection associated with said alarm system, a first of said channels having a delay circuit connected thereto through said control circuit, said control circuit switching to an alarm state after a predetermined time delay from reception of an alarm signal on said first channel, said control circuit switching immediately to an alarm state after reception of alarm signals on a second or further ones of said receiver channels, said alarm state

providing actuating signals to said siren to provide a local alarm and further enabling said dialer circuit to communicate with a remote control receiver to provide a remote alarm.

2. A portable, stand-alone alarm system as claimed in claim 1 wherein said time delay circuit is programmable by said key pad to adjust said time delay to a desired predetermined time period, said control circuit having an alarm disabling circuit, said alarm disabling circuit disabling said alarm signal of said first channel when a predetermined code is provided from said key pad within said predetermined time period.

3. A portable, stand-alone alarm system as claimed in claim 2 wherein said cellular telephone system is also in wireless communication with a facsimile machine capable of recording coded messages.

4. A portable, stand-alone alarm system as claimed in claim 3 wherein said associated components of said control circuit comprises one or more temperature detectors having a sensing probe in communication with the ambient environment of said housing, said temperature detectors being connected to a temperature detector circuit connected to said transmitter to store and transmit information signals indicative of periodic temperature sampling values, said control circuit switching to an alarm state when said sensed temperature exceeds a predetermined stored value.

5. A portable, stand-alone alarm system as claimed in claim 2 wherein said housing is further provided with connection means to connect said system to an electrical supply line or to a D.C. internal supply.

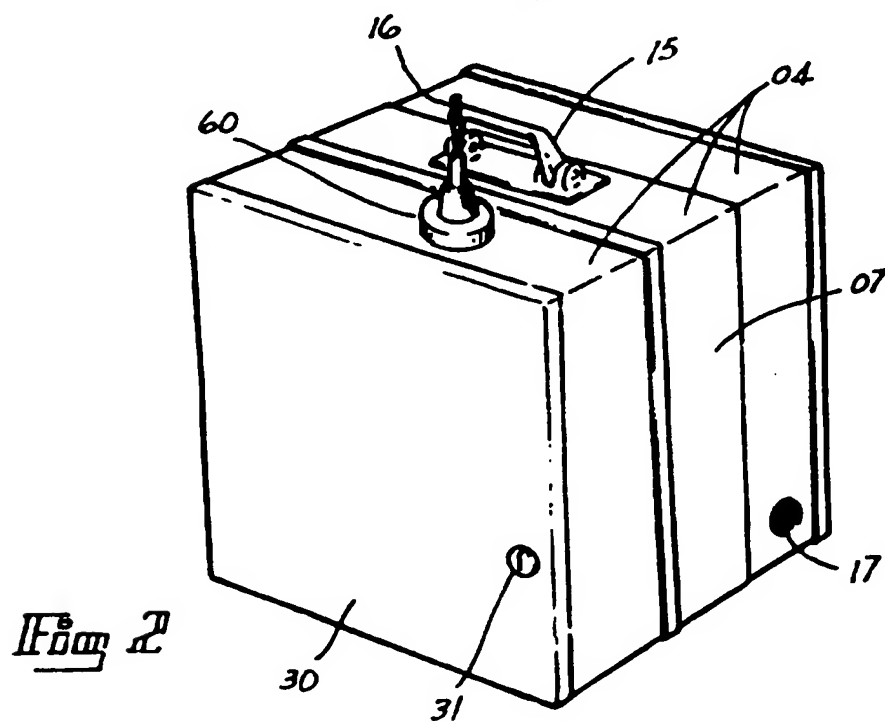
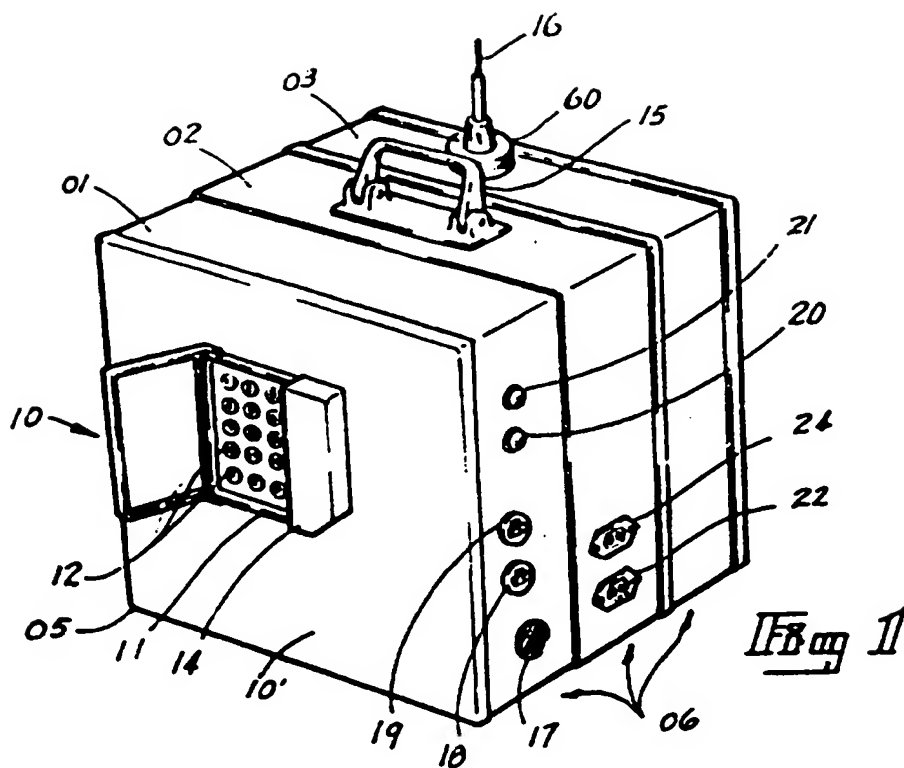
6. A portable, stand-alone alarm system as claimed in claim 2 wherein said housing is further provided with telephone jacks to permit the interconnection of said system to a local telephone device outside said housing and to a local telephone line.

7. A portable, stand-alone alarm system as claimed in claim 2 wherein there are four channels in said receiver each tuned to a different frequency and corresponding to a transmitter frequency of a respective one of four of said wireless remote detectors.

8. A portable, stand-alone alarm system as claimed in claim 7 wherein said wireless remote detectors are infrared detectors.

9. A portable, stand-alone alarm system as claimed in claim 2 wherein said transmitter transmits a user identification code when said control circuit switches to an alarm state.

10. A portable, stand-alone alarm system as claimed in claim 2 wherein a third compartment is provided in said housing and provided therein with a transformer and a D.C. battery.



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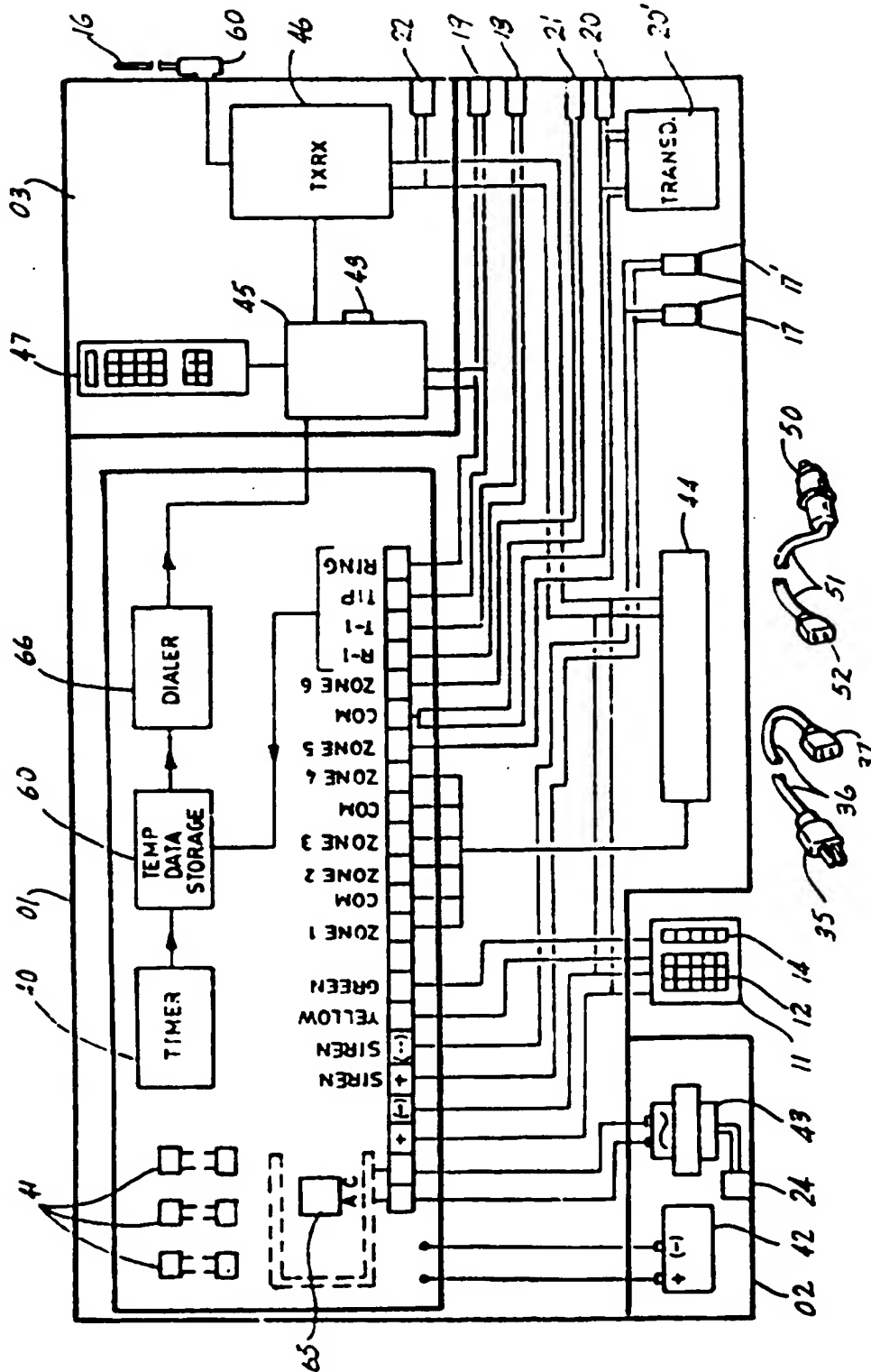


Fig 3